



Stratigraphy across the Cimmerian unconformity in Eastern Alborz (Neka Valley, Iran): Late Cretaceous glauconitic facies as indicator of a geodynamic event

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In the Neka Valley (Eastern Alborz, Iran), glaucony-bearing marine sediments of early-middle Santonian age directly overlie Palaeozoic to Triassic units deformed during the Eo-cimmerian orogenic event, that was produced by the docking of the Iranian plate at the southern border of Eurasia during the Late Triassic. The Upper Cretaceous open marine sediments, deposited on a flat surface lacking any evidence of pedogenesis, consist of fine-grained marly limestones rich in calcisphaere, with the basal 1 to 1.5 meters rich in glaucony grains. The geochemical and morphological features of glaucony grains at the base of the Upper Cretaceous succession, indicate an autochthonous origin of glaucony, denoting a long-lasting period of low sedimentation rates. The glaucony can be classified as highly evolved, on account of the K content (that is around 9%) and of the X-ray powder diffraction patterns. The development of glaucony in the observed stratigraphic position is indicative of a rapid drowning of the former Cimmerian relief that can not be explained by an eustatic rise alone: the palaeo-depth needed for the development of glaucony and for the presence of the observed bathial foraminifera assemblages is greater than the maximum eustatic excursion documented in the Cretaceous. The occurrence of glaucony in this stratigraphic position reflects thus an important episode of increased subsidence rates, related to a geodynamic event framed in a time-interval of major plate reorganization in the complex puzzle of the Iranian plates: the subsidence event that caused the development of the glauconitic horizon in the Neka Valley could likely represent the effect of a Santonian

stage of the complex and long-lasting story of the opening of the Caspian Sea.